What is claimed is:

1. A method of forming a tubular liner within a preexisting structure, comprising:
positioning a tubular assembly within the preexisting structure; and
radially expanding and plastically deforming the tubular assembly within the preexisting structure;
wherein, prior to the radial expansion and plastic deformation of the tubular assembly, a predetermined portion of the tubular assembly has a lower yield point than another portion of the tubular assembly.

2. An expandable tubular member comprising a steel alloy comprising, by weight percentage, the following:
0.065 to 0.18% C,
0.006 to 1.44 % Mn,
0.006 to 0.02 % P,
0.001 to 0.004% S,
0.24 to 0.45% Si,
up to 0.16% Cu,
0.01 to 9.1% Ni, and
0.02 to 18.7% Cr.

3. An expandable tubular member, wherein the yield point of the expandable tubular member is at most about 46.9 to 61.7 ksi prior to a radial expansion and plastic deformation; and wherein the yield point of the expandable tubular member is at least about 65.9 to 74.4 ksi after the radial expansion and plastic deformation.

4. An expandable tubular member, wherein a yield point of the expandable tubular member after a radial expansion and plastic deformation is at least about 5.8 to 40 % greater than the yield point of the expandable tubular member prior to the radial expansion and plastic deformation.

5. An expandable tubular member, wherein the anisotropy of the expandable tubular member, prior to the radial expansion and plastic deformation, ranges from about 1.04 to at least about 1.92.

6. An expandable tubular member, wherein the expandability coefficient of the expandable tubular member, prior to the radial expansion and plastic deformation, is greater

than 0.12.

7. An expandable tubular member, wherein the expandability coefficient of the expandable tubular member is greater than the expandability coefficient of another portion of the expandable tubular member.

8. An expandable tubular member, wherein the tubular member has a higher ductility and a lower yield point prior to a radial expansion and plastic deformation than after the radial expansion and plastic deformation.

9. A method of radially expanding and plastically deforming a tubular assembly comprising a first tubular member coupled to a second tubular member, comprising:

radially expanding and plastically deforming the tubular assembly within a preexisting structure; and

using less power to radially expand each unit length of the first tubular member than to radially expand each unit length of the second tubular member.

10. A method of manufacturing a tubular member, comprising:

processing a tubular member until the tubular member is characterized by one or more intermediate characteristics;

positioning the tubular member within a preexisting structure; and

processing the tubular member within the preexisting structure until the tubular member is characterized one or more final characteristics.

11. An apparatus, comprising:

an expandable tubular assembly; and

an expansion device coupled to the expandable tubular assembly;

wherein a predetermined portion of the expandable tubular assembly has a lower yield point than another portion of the expandable tubular assembly.

12. An expandable tubular member, wherein a yield point of the expandable tubular member after a radial expansion and plastic deformation is at least about 5.8 % greater than the yield point of the expandable tubular member prior to the radial expansion and plastic deformation.

13. A method of determining the expandability of a selected tubular member, comprising:

determining an anisotropy value for the selected tubular member;

determining a strain hardening value for the selected tubular member; and

multiplying the anisotropy value times the strain hardening value to generate an expandability value for the selected tubular member.

14. A method of radially expanding and plastically deforming tubular members, comprising:

selecting a tubular member;

determining an anisotropy value for the selected tubular member;

determining a strain hardening value for the selected tubular member;

multiplying the anisotropy value times the strain hardening value to generate an expandability value for the selected tubular member; and

if the anisotropy value is greater than 0.12, then radially expanding and plastically deforming the selected tubular member.

15. A radially expandable tubular member apparatus comprising:

a first tubular member;

a second tubular member engaged with the first tubular member forming a joint; and

a sleeve overlapping and coupling the first and second tubular members at the joint;

wherein, prior to a radial expansion and plastic deformation of the apparatus, a predetermined portion of the apparatus has a lower yield point than another portion of the apparatus.

16. A method of joining radially expandable tubular members comprising:

providing a first tubular member;

engaging a second tubular member with the first tubular member to form a joint;

providing a sleeve;

mounting the sleeve for overlapping and coupling the first and second tubular members at the joint;

wherein the first tubular member, the second tubular member, and the sleeve define a tubular assembly; and

radially expanding and plastically deforming the tubular assembly;

wherein, prior to the radial expansion and plastic deformation, a predetermined portion of the tubular assembly has a lower yield point than another portion of the tubular assembly.

17. An expandable tubular member, wherein, if the carbon content of the tubular member is less than or equal to 0.12 percent, then the carbon equivalent value for the tubular

member is less than 0.21; and wherein, if the carbon content of the tubular member is greater than 0.12 percent, then the carbon equivalent value for the tubular member is less than 0.36.

18. A method of selecting tubular members for radial expansion and plastic deformation, comprising:

selecting a tubular member from a collection of tubular member;

determining a carbon content of the selected tubular member;

determining a carbon equivalent value for the selected tubular member;

if the carbon content of the selected tubular member is less than or equal to 0.12 percent and the carbon equivalent value for the selected tubular member is less than 0.21, then determining that the selected tubular member is suitable for radial expansion and plastic deformation; and

if the carbon content of the selected tubular member is greater than 0.12 percent and the carbon equivalent value for the selected tubular member is less than 0.36, then determining that the selected tubular member is suitable for radial expansion and plastic deformation.

19. An expandable tubular member, comprising:

a tubular body;

wherein a yield point of an inner tubular portion of the tubular body is less than a yield point of an outer tubular portion of the tubular body.

20. A method of manufacturing an expandable tubular member, comprising:

providing a tubular member;

heat treating the tubular member; and

quenching the tubular member;

wherein following the quenching, the tubular member comprises a microstructure comprising a hard phase structure and a soft phase structure.

21. A method of radially expanding a tubular assembly, comprising:

radially expanding and plastically deforming a lower portion of the tubular assembly by pressurizing the interior of the lower portion of the tubular assembly; and

then, radially expanding and plastically deforming the remaining portion of the tubular assembly by contacting the interior of the tubular assembly with an expansion device.

22. A method of repairing a tubular assembly, comprising:
positioning a tubular patch within the tubular assembly; and
radially expanding and plastically deforming a tubular patch into engagement with the tubular assembly by pressurizing the interior of the tubular patch.

23. An apparatus for radially expanding a tubular member, comprising:
a fluid reservoir;
a pump for pumping fluids out of the fluid reservoir;
an accumulator for receiving and accumulating the fluids pumped from the reservoir;
a flow control valve for controllably releasing the fluids accumulated within the reservoir; and
an expansion element for engaging the interior of the tubular member to define a pressure chamber within the tubular member and receiving the released accumulated fluids into the pressure chamber.

24. An apparatus for radially expanding a tubular member, comprising:
an expandable tubular member;
a locking device positioned within the expandable tubular member releasably coupled to the expandable tubular member;
a tubular support member positioned within the expandable tubular member coupled to the locking device; and
an adjustable expansion device positioned within the expandable tubular member coupled to the tubular support member;
wherein at least a portion of the expandable tubular member has a higher ductility and a lower yield point prior to the radial expansion and plastic deformation than after the radial expansion and plastic deformation.

25. A method for radially expanding a tubular member, comprising:
positioning a tubular member and an adjustable expansion device within a preexisting structure;
radially expanding and plastically deforming at least a portion of the tubular member by pressurizing an interior portion of the tubular member;
increasing the size of the adjustable expansion device; and
radially expanding and plastically deforming another portion of the tubular member by displacing the adjustable expansion device relative to the tubular member.

26. A method of radially expanding and plastically deforming an expandable tubular member, comprising:

limiting the amount of radial expansion of the expandable tubular member.

27. An apparatus for radially expanding a tubular member, comprising:

an expandable tubular member;

an expansion device coupled to the expandable tubular member for radially expanding and plastically deforming the expandable tubular member; and

an tubular expansion limiter coupled to the expandable tubular member for limiting the degree to which the expandable tubular member may be radially expanded and plastically deformed.

28. An apparatus for radially expanding an expandable tubular member, comprising:

an expandable tubular member;

a locking device positioned within the expandable tubular member releasably coupled to the expandable tubular member;

an actuator positioned within the expandable tubular member coupled to the locking device;

a tubular support member positioned within the expandable tubular member coupled to the actuator;

a first expansion device coupled to the tubular support member;

a second expansion device coupled to the tubular support member; and

an expandable tubular sleeve coupled to the second expansion device.

29. A method for radially expanding a tubular member, comprising:

positioning an expandable tubular member and an expandable tubular sleeve within a preexisting structure;

radially expanding and plastically deforming at least a portion of the expandable tubular member onto the expandable tubular sleeve; and

radially expanding and plastically deforming at least a portion of the expandable tubular sleeve.

30. A method for radially expanding a tubular member, comprising:

positioning an expandable tubular member, an expandable tubular sleeve, and an adjustable expansion device within a preexisting structure;

increasing the size of the adjustable expansion device to radially expand and plastically deform at least a portion of at least one of the expandable tubular member and the expandable tubular sleeve; and

radially expanding and plastically deforming at least another portion of the expandable tubular member using the adjustable expansion device.

31. A method of increasing a collapse strength of a tubular member after a radial expansion and plastic deformation of the tubular member using an expansion device, comprising:

reducing a coefficient of friction between the tubular member and the expansion device during the radial expansion and plastic deformation of the tubular member; and

reducing a ratio of a diameter of the tubular member to a wall thickness of the tubular member.

32. A system for radially expanding and plastically deforming a tubular member, comprising:

a tubular member; and

an expansion device positioned within the tubular member;

wherein the coefficient of friction between the tubular member and the expansion device is less than 0.075; and

wherein the ratio of the diameter of the tubular member to a wall thickness of the tubular member is less than 21.6.

33. A method of radially expanding and plastically deforming a tubular member using an expansion device, comprising:

quenching and tempering the tubular member;

positioning the tubular member within a preexisting structure; and

radially expanding and plastically deforming the tubular member.

34. A radially expandable and plastically deformable tubular member, comprising:

a yield strength ranging from about 40.0 ksi to 100.0 ksi;

a ratio of the yield strength to a tensile strength of the tubular member ranging from about 0.40 to 0.86;

a longitudinal elongation of the tubular member prior to failure ranging from about 14.8% to 35.0%;

a width reduction of the tubular member prior to failure ranging from about 30% to

45.0%;

a width thickness reduction of the tubular member prior to failure ranges from about 30.0% to 45%; and

an anisotropy of the tubular member ranges from about 0.65 to 1.50.

35. A method of manufacturing a tubular member, comprising:

fabricating a tubular member having intermediate properties;

positioning the tubular member within a preexisting structure;

radially expanding and plastically deforming the tubular member within the preexisting structure; and

baking the tubular member within the preexisting structure to convert one or more of the intermediate properties to final properties.